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10/721,735	11/25/2003	Seung Hoon Kim	10125/4127	3288

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EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,735

Applicant(s)

KIM, SEUNG HOON

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-26 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-26 and 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-15, 18-26 and 28-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abileah (U.S. Patent No. 5,262,880) in view of An et al. (U.S. Patent No. 6,392,724 "An").

Regarding claim 1, Abileah discloses an LCD device comprising:

an LCD panel (Figure 1A element DISPLAY, Figure 1 element 6) for displaying an image;

a plurality of fluorescent lamps (Figure 6; Column 13 line 55 – Column 14 line 9) disposed below the LCD panel at fixed intervals in an area substantially corresponding to the LCD panel;

a heat protection plate (Figure 1 element 5 or IRF or 4 or combination thereof, Figure 1A element DIFFUSER or IR FILTER or I.S.D. or combination thereof) formed between the LCD panel and the fluorescent lamp; and,

a first open area (Figure 1A element AIR GAP #3) between the heat protection plate and the LCD panel.

Abileah fails to explicitly disclose a unitary case supporting the plurality of fluorescent lamps, the heat protection plate and the reflecting plate, wherein the heat protection plate is disposed in the case. An, however, teaches a case supporting the light source elements (Figures 4 and 6 elements 130, 170, 142, 145, and 146) in which a heat protection plate (elements 145 and/or 146) is disposed in the case.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a case to support the light source elements for the display device disclosed by Abileah. One would have been motivated to form such a casing to benefit from its conventionally known advantages such as its ability to provide positional alignment between the various light source and display components and to protect the components from environmental hazards such as shock (Column 6 lines 25-30).

Regarding claim 2, Abileah discloses the heat protection plate as comprising at least one of a diffusion plate and an optical sheet (Figure 1A element DIFFUSER, Figure 1 element 5).

Regarding claim 3, Abileah discloses the heat protection plate as having a light transmitting plate (Figure 1 element IRF, Figure 1A elements IR FILTER).

Regarding claim 4, Abileah discloses a reflecting plate disposed to reflect light from the fluorescent lamps to the LCD panel (Figure 1 element 3, Figure 1A element REFLECTOR PLATE).

Regarding claim 6, Abileah fails to disclose the reflecting plate as formed on the case. An, however, teaches the reflecting plate as formed on the case (Figures 4 and 6 element 48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the reflecting plate on the case in the display device disclosed by Abileah. One would have been motivated to form the reflecting plate on the case so that reflector may surround and cover the entire back side of the fluorescent lamps while being precisely positioned in its predetermined position relative to the lamps to uniformly irradiate the liquid crystal display according to the teachings of An (Column 6 lines 1-8).

Regarding claim 7, Abileah discloses the reflecting plate as having a high optical reflectivity material containing at least one of silver, titanium, and a polymer (Column 12 lines 28-33).

Regarding claims 8 and 9, Abileah fails to disclose the case as having a high heat conductivity material. An, however, teaches a high heat conductivity aluminum as the material for the case as a means of maintaining a lower temperature of the display unit (Column 5 lines 15-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the case to comprise a high heat conductivity material such as aluminum. One would have been motivated to incorporate such a material into the case as a means of maintaining a lower display temperature and thus a higher display quality (Column 5 lines 15-18).

Regarding claim 10, Abileah discloses a second open area disposed between the heat protection plate and the plurality of fluorescent lamps (Figure 1A element AIR GAP #1).

Regarding claims 11-14, Abileah discloses a plurality of heat protection panels, and a third open area as disposed between at each of the plurality of heat protection panels (Figure 1A element AIR GAP #2).

Regarding claims 15, 16, 19, and 20, Abileah discloses a means for scattering light disposed between the LCD panel and the plurality of fluorescent lamps (Figure 1A element DIFFUSER).

Regarding claim 21, Abileah discloses a second open area disposed between the heat protection plate and the plurality of fluorescent lamps (Figure 1A element AIR GAP #1).

Regarding claim 22, Abileah discloses a first diffusion plate (Figure 6 element 204) and a first optical sheet (Figure 6 element 202b) disposed between the LCD panel and the plurality of fluorescent lamps;

a heat protection plate (Figure 6 element IRF or alternatively 202a or combination thereof) between the LCD panel and the plurality of fluorescent lamps; and,

a first open area disposed between the heat protection plate and the LCD panel (Figure 1A element AIR GAP #1 or AIR GAP #2).

Regarding claim 23, Abileah discloses the heat protection plate as having at least one of a second diffusion plate and a second optical sheet (Figure 6 element 202a).

Regarding claim 24, Abileah discloses the heat protection plate as having a light transmitting plate (Figure 6 element IRF).

Regarding claims 25 and 28, Abileah discloses a reflecting plate as disposed to reflect light from the fluorescent lamps to the LCD panel (Figure 6 element 298).

Regarding claim 26, Abileah discloses the reflecting plate as having a high optical reflectivity material containing at least one of silver, titanium, and a polymer (Column 12 lines 28-33).

Regarding claim 31, Abileah discloses a second open area as disposed between the heat protection plate and the fluorescent lamps (Figure 1A element AIR GAP #1).

Regarding claim 32-35, Abileah discloses a plurality of heat protection panels, and a third open area as disposed between each of the plurality of heat protection panels (Figure 1A element AIR GAP #2).

Regarding claims 36-38, Abileah discloses the heat protection plate as comprising a light scattering means (Figure 1A element DIFFUSER, Figure 1 element 5). Abileah fails to disclose details concerning the connection of the heat protection plate and a case. An, however, teaches a heat protection plate/light scattering means as connected to a case (Figures 4 and 6 elements 130, 170, 150, 145 and 146).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the heat protection plate/light scattering means to a case in the display device disclosed by Abileah. One would have been motivated to connect the heat protection plate to the case such to provide and maintain positional alignment between the light source and the heat protection plate.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abileah in view of An and in further view of Kanatsu et al. (U.S. Patent No. 6,867,825 “Kanatsu”).

Abileah as modified by An discloses all of the proposed limitations except for the light-reflecting means as having a high optical reflectivity material coated on a high heat conductivity material. Kanatsu, however, teaches such a reflector as a means of efficiently radiating heat from the lamps (Column 8 line 62 – Column 9 line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the reflector to comprise a high heat conductivity material such as aluminum. One would have been motivated to incorporate such a material into the case as a

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means of maintaining a lower display temperature and thus a higher display quality (Column 8 line 62 – Column 9 line 3).

Response to Arguments

Applicant's arguments filed 8/25/06 have been fully considered but they are not persuasive.

Regarding the rejection of claim 1, Applicant argues that Abileah in view of An fails to teach "a unitary case supporting the plurality of fluorescent lamps, the heat protecting plate and teh reflecting plate, wherein the heat protection plate is disposed in the case". Applicant states that because An disclosed an edge-type backlight, the combination of references fails to teach "a unitary case supporting the plurality of fluorescent lamps disposed below the LCD panel at fixed intervals in the area substantially corresponding to the LCD panel. The examiner disagrees with Applicant's arguments and maintains the rejection.

Abileah discloses the limitations of a plurality of fluorescent lamps disposed below the LCD panel at fixed intervals in an area substantially corresponding to the LCD panel, but does not disclose a unitary case. An is relied upon to teach the unitary case. Although An discloses a lamp configuration different from the lamp configuration disclosed by Abileah, the teaching of a unitary case remains applicable to the backlight assembly disclosed by Abileah. One would have been motivated to apply the unitary case taught by An to the backlight assembly disclosed by Abileah to provide positional alignment between the various light source and display components and to protect the components from environmental hazards such as shock (Column 6

lines 25-30). The examiner holds that the difference in lamp configuration between the references would not detract from the benefit of the unitary case.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael H. Caley
October 26, 2006


mhc


ANDREW SCHECHTER
PRIMARY EXAMINER